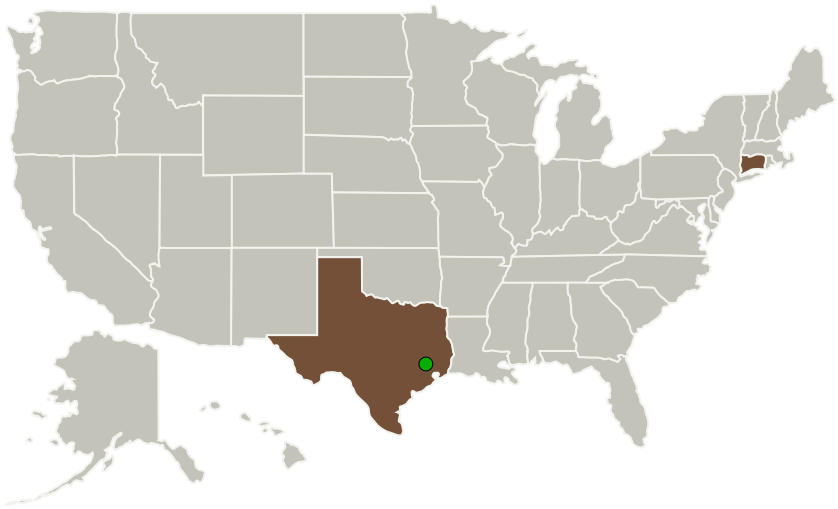
Compact, Regenerable, Low Power Adsorber for Spacesuit CO2, Humidity, and Trace Contaminant Control, Phase I

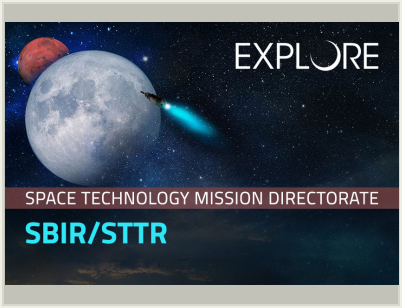
Completed Technology Project (2012 - 2013)

Project Introduction

Current approaches planned for space suit atmosphere revitalization (AR) are neither compatible with each other nor regenerable in space, and have a high life cycle operating cost associated with them. The proposed PCI innovation in collaboration with University of Hartford involves synthesizing improved sorbents on high surface area supports tailored for CO2, water and trace contaminant removal. Phase I effort will demonstrate proof of concept – developing appropriate methods for coating high capacity sorbents on high surface area supports, scalability of the approach with high bed utilization, maximizing sorption capacity resulting in ultra-compact sorption adsorber, rapid regeneration to vacuum and an operating demonstration on a bench scale; representing significant advances over current state-of-the art AR methods.

Primary U.S. Work Locations and Key Partners





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Completed Technology Project (2012 - 2013)

Organizations Performing Work	Role	Type	Location
Precision Combustion, Inc.	Lead Organization	Industry	North Haven, Connecticut
Johnson Space Center(JSC)	Supporting Organization	NASA Center	Houston, Texas
University of Hartford	Supporting Organization	Academia	West Hartford, Connecticut

Primary U.S. Work Locations	
Connecticut	Texas

Project Transitions

February 2012: Project Start

February 2013: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/138051)*

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Precision Combustion, Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

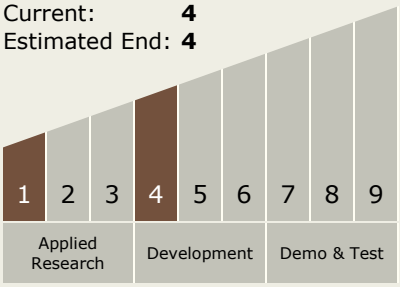
Carlos Torrez

Principal Investigator:

Saurabh Vilekar

Technology Maturity (TRL)

Start: **1**
Current: **4**
Estimated End: **4**



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Completed Technology Project (2012 - 2013)

Technology Areas

Primary:

- TX06 Human Health, Life Support, and Habitation Systems
  - TX06.1 Environmental Control & Life Support Systems (ECLSS) and Habitation Systems
    - TX06.1.1 Atmosphere Revitalization

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System